Abstract ID : 496

Title : Ontogenetic Variability in the Nutritional Quality of an Important Prey Species of Marine Mammals

Category : Conservation

Student : Not Applicable

Preferred Format : Poster Presentation

Abstract : Pacific herring are one of the principal prey of Steller sea lions and other marine mammals, and is a possible key to understanding why sea lion populations have declined in Russia and western Alaska. However, relatively little is known about the nutritional value of herring and whether it changes with time of year. We compared the lipid and fatty acid composition of flesh and roe of herring caught at different stages of maturity in 1983 and 2002-2003. We found changes in crude lipid content in whole fish corresponded to stage of maturity, ranging from 4 to 9% in spawning fish and 11 to 19% in less mature fish. Lipid from roe at different stages of maturity had a similar fatty acid composition, with the greatest proportion being docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA). Compared to fatty acid content of whole fish carcass, lipid composition of herring roe was higher $P<0.05$ in total polyunsaturated fatty acids and had a lower level of monounsaturated fatty acids. Similar analysis of herring sampled in 1983 also showed a significantly higher composition of fatty acids in roe (DHA and EPA). Relative fatty acid composition did not differ between the two samples of fish, despite differences in fish size (herring were smaller in the 2002-2003 sample). There were also no differences in the relative composition of the omega-3 fatty acids contained in herring sampled in both periods. However, the nutritional quality of herring with respect to omega-3 fatty acids was found to vary with the degree of maturity, and lipid content was lower during the spawning season. These are important factors to consider in evaluating the nutritional status (e.g., essential fatty acid intake) of Steller sea lions and other species of marine mammals.